- **Frederick W. Taylor**
  - Taylor realised the value of redesigning the work situation (through use of time and motion studies) to achieve both higher output for the company and higher wages for the worker
  - His writings were one of the first reasonably comprehensive philosophies of management
  - 1909 Taylor's book on Shop Management explained the management's role in motivating workers to avoid "natural soldiering", i.e., the natural tendency of people to "take it easy"
  - 1911 Taylor published the book *The Principles of Scientific Management.*
  - We will read about F.W Taylor in Chapter 2.

World War I (1917-1918)

- **Robert Yerkes** was the most influential psychologist in getting psychology into the war. He proposed ways of screening recruits for mental deficiency and assigning selected recruits to army jobs
- Committees of psychologists also investigated soldier motivation, morale, psychological problems of physical incapacity ("shell shock") and discipline.
- The Army was sceptical and approved only a modest number of proposals, primarily in the assessment of recruits — which Yerkes and others developed as a general intelligence test
- Meanwhile **Walter Dill Scott** was doing research on the best placement of soldiers in the Army. He classified and placed enlistees, conducted performance evaluations of officers, and developed and prepared job duties and qualifications for over 500 jobs.
- However, the final authorisation for the testing program came in August 1918, only three months before the Armistice was signed — thus the intelligence tests were not utilised as much as Yerkes had hoped
- 1917: *Journal of Applied Psychology* began publication. Today, it is still perhaps the most respected, representative journal in I/O field

Between the Wars (1919-1940)

- Psychological Corporation was started by **James Cattell** in 1921.The main purpose was to advance psychology and promote its usefulness to industry.
- 1920s: Doctoral degrees specialising in industrial psychology begin to be offered at U.S. universities. Among the first: Ohio State, Carnegie Institute of Technology, Univ. of Minnesota, and Stanford University.
- **The Hawthorne Studies**
  We will read about Hawthorne Experiments and Elton Mayo in Chapter 4.

- Large organisations are the primary users of industrial psychological methods, either directly by employing an Industrial/ Organisational Psychologist's services or indirectly by using information from the field (e.g., published articles, books, seminars).
- Numerous large American corporations such as AT&T, IBM, Unisys Corp., General Motors Corp., Ford Motor Co., PepsiCo Inc., to name just a few, maintain a staff of Industrial Psychologists.
- Many other companies regularly use Industrial Psychologists as consultants on an as-needed basis.

iii. Government

Industrial Psychologists are also employed by the government. The Federal Office of Personnel Management in U.S.A has an active test development program for civil service test construction.

iv.Military

All branches of the military employ Industrial Psychologists to conduct research and design applications in leadership, personnel placement testing, human factors, and for improving motivation and morale. The U.S. Army Research Institute is an example of one such military agency.

Thinking Time !!

Suppose you have become an Industrial Psychologist. (Wow!!! Congrats). Which of the mentioned locations would you prefer and why?

v. State and Municipal Governments

They also employ psychologists, especially for personnel selection purposes in the context of local civil service requirements.

G. MAJOR PROBLEMS OF INDUSTRIAL PSYCHOLOGY

i. Resistance to Change

- Human beings have a tendency to resist change and this problem causes a major hurdle for industrial psychologists.
- Resistance may not come from the employee only but also from all levels of management and the employer
- Resistances may take the form of hostility and aggression against the change itself or against the administration.

3. Co-operation with Workers

This principle was introduced so that the first two principles could be followed i.e. management should co-operate with the workers to ensure that all the work is being done in accordance with the principles of science which have been developed.

i. Task Idea

Taylor said that - The work of each worker should be fully planned out by the management at least one day in advance, and each worker should receive in most cases, complete written instructions, describing in detail the task which he is to accomplish, as well as the means to be used in doing the work. And work planned in this way constitutes a task which is to be solved, not by the worker alone, but almost in all cases, by the joint effort of the worker and the management. This task specifies not only what is to be done, but how it is to be done and the exact time allowed for doing it. And whenever the worker succeeds in doing his task right and within the time specified, he receives additional money.

ii. Differential Piece–Rate System

Taylor introduced this system to motivate workers to increase production. In this method of wage payment, two different rates were fixed for efficient and inefficient workers. Those who failed in attaining the standard, were to be paid at a lower rate and those exceeding the standard or just attaining the standard were to get a higher rate.

E.g. The standard is fixed at 50 units per day and piece rate are Rs. 5 and Rs. 6 per unit. If a worker produces say 50 units he gets

50 x 6 = 300 Rs. per day

and if he produces less than 50 say 49, he gets –

49 x 5 = 245 Rs. per day

4. Division of Responsibility

In the fourth principle, Taylor says that there must be almost equal division of work and responsibility between management and worker. He says that all the planning work must be done by the management in accordance with the laws of science and the execution work is to be done by the worker.

i. Principle of Exception

If anything exceptional occurs in the organisational functioning i.e. which is not routine activity or which is innovative or creative, it should be undertaken by management.

ii. Functional Foremanship

Taylor developed this concept in order to apply specialisation at supervisor level. Under this, system planning and execution are separated from each other and the job

CHAPTER

3 Work Study

By the end of this chapter, you would be able to :

- Understand various studies required to optimise resources.
- Learn about various procedures and techniques used in Method, Motion and Time study.
- Know about science of breaking a set of motions into individual motions.
- Appreciate the advantages derived from these studies and their applications.

The chapter contains :

- Definition and Objectives of Work Study
- Definition and Objectives of Method Study
- Procedure of Method Study
- Techniques used in Recording of Information
- Definition of Motion Study
- Procedure of Motion Study
- Principles of Motion Economy
- Therbligs
- Micromotion Study
- Memomotion Study
- Definition and Objectives of Time Study
- Procedure of Time Study
- Limitations of Time Study

A. THE INSIGHT

- "I have had more in twenty years than any other woman I have known has had in a lifetime", said Lillian Gilbreth, after the death of Frank Gilbreth, her husband.
- Frank and Lillian Gilbreth were one of the great husband-and-wife teams of science and engineering, who, in the early 1900s collaborated on the development of motion study as an engineering and management technique. They even used efficiency methods to raise their 12 children while having busy careers which was the inspiration for the book and movie,' Cheaper by The Dozen'.